

**REPORT OF THE UTILITIES DEPARTMENT
OF
THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA**

**DOCKET NO. 98-003-E
DUKE POWER COMPANY**

REPORT OF UTILITIES DEPARTMENT
SOUTH CAROLINA PUBLIC SERVICE COMMISSION
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REPORT OF UTILITIES DEPARTMENT

SOUTH CAROLINA PUBLIC SERVICE COMMISSION

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REPORT OF FUEL ADJUSTMENT ANALYSIS

SCOPE OF EXAMINATION

The Commission's Utilities Department Staff analyzed the Company's procedures and practices pertaining to its fuel operation. Staff's examination consisted of the following:

- 1) Review of the Company's monthly fuel reports including:
 - a) Power Plant Performance Data Reports
 - b) Major Unit Outage Reports
 - c) Generation Mix
 - d) Generation Statistics
 - e) Retail Comparison of MWH Sales
 - f) Retail Comparison of Fuel Costs
- 2) On-site inspections of the Company's coal quality sampling technique.
- 3) Review of the Company's currently approved Adjustment for Fuel Costs tariff.
- 4) History of Cumulative Recovery Account.
- 5) Calculation of fuel costs to be included in the base rates for June 1998 through May 1999.

REVIEW OF COMPANY'S MONTHLY FUEL REPORTS

The Company files with this Commission monthly reports that include power plant performance data, major unit outages, generation mix, and other reports that provide the Staff pertinent data on which to evaluate the Company's fuel operating expenses.

Selected information from the Power Plant Performance Data Reports for nuclear and fossil plants is shown on **Exhibit No. 1**. It includes a listing of capacity factors and equivalent availability factors for each unit by month for the period and also includes the yearly capacity factors (1994 -1997) and the lifetime (cumulative) capacity factor of the nuclear units. These factors are expressed as a percentage. This percentage figure can be a useful index

DUKE POWER COMPANY
NUCLEAR UNIT OUTAGE REPORT
 April 1, 1997 – March 31, 1998

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 EXHIBIT NO. 2A
 PAGE 1 OF 2

<u>UNIT</u>	<u>DATE OF OUTAGE</u>	<u>HOURS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
OCONEE 1	3/28/97 - 4/11/97	255.2/F	High vibration on 1A1 reactor coolant pump – aligned and balanced
	6/13/97 – 7/3/97	478.3/F	Required inspection of high pressure injection piping thermal shield
	9/18/97 – 12/24/97	2349.3/S	Refueling – EOC 17 and repairs & modifications. The outage was extended due to delays involving the reactor building cooling units, fuel handling equipment, jib hoist for the reactor coolant pump, service water modifications hydrogen recombiners modification and a leaking check valve.
OCONEE 2	12/25/97 – 12/25/97	1.28/S	Turbine overspeed trip test.
	12/27/97 – 12/27/97	0.42/S	Load rejection test.
	12/28/97 – 2/11/98	1067.1/F	Steam generator leak, control rod drive failure and surge line drain line weld failure.
	2/15/98 – 2/19/98	92.9/F	“1HP-27” high pressure injection valve failed during testing.
	4/22/97 – 5/24/97	770.5/F	Non- isolatable reactor coolant system leak due to crack in high pressure injection piping due to loose thermal sleeve.
OCONEE 3	7/6/97 – 7/7/97	40.3/F	Generator voltage regulator did not respond as expected to an electrical grid disturbance. Regulator was calibrated.
	9/4/97 – 9/11/97	157.9/F	Repair of leaking pressure seal ring on valve 2LP-1
	3/13/98 – 3/31/98	442.9/S	Began refueling – EOC 16.
OCONEE 3	5/2/97 – 6/1/97	734.2/F	Inspection & repair of high pressure injection piping thermal sleeve and repair 2 damaged high pressure injection pumps.
	6/24/97 – 7/5/97	273.7/F	Generator seal oil problems due to cocked seal in generator.
	9/27/97 – 10/11/97	346.0/F	Replace failed 3B reactor building cooling unit.
MCGUIRE 1	2/14/97 – 5/20/97	1176.0/S	Refueling – EOC 11 and steam generator replacement.
	5/24/97 – 5/24/97	17.0/F	Steam leak on high pressure turbine stationary blade ring retaining pins.
	5/30/97 – 5/31/97	21.3/F	Turbine intercept valve oil leak.

DUKE POWER COMPANY
NUCLEAR UNIT OUTAGE REPORT
 April 1, 1997 – March 31, 1998

<u>UNIT</u>	<u>DATE OF OUTAGE</u>	<u>HOURS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
MCGUIRE 1	6/3/97 – 6/4/97	24.6/F	High pressure turbine stationary blade guide pin leak.
	9/6/97 – 9/9/97	57.4/F	Reactor/turbine trip due to loss of 120 vac non-vital power supply.
	2/9/98 – 2/11/98	42.7/F	Loss of power to certain control rods. Replaced defective fuse holder.
	3/2/98 – 3/3/98	14.6/F	"1A" low pressure turbine intercept valve control oil pipe leaking.
MCGUIRE 2	6/14/97 – 6/29/97	355.9/F	Steam generator tube leak.
	7/11/97 – 7/22/97	271.9/F	Reactor trip due to reactor coolant pump motor failure.
	9/6/97 – 9/10/97	74.7/F	Reactor/turbine trip due to loss of 120 vac non-vital power supply.
	10/3/97 – 12/18/97	1843.1/S	Refueling – EOC 11 and steam generator replacement.
	2/22/98 – 2/24/98	44.3/F	Main generator voltage regulator failed to control generator voltage.
CATAWBA 1	11/28/97 – 1/6/98	910.8/S	Refueling – EOC 10.
	1/18/98 – 1/20/98	51.3/F	Repair steam generator "1B" main feedwater valve "1CF37".
CATAWBA 2	3/21/97 – 5/3/97	764.0/S	Refueling – EOC 8.
	6/26/97 – 6/28/97	35.3/F	"2TB" 6900 load center de-energized due to a failed relay.
	7/26/97 – 7/28/97	35.2/F	Steam generator "2D" main steam isolation valve control circuit failed.
	8/17/97 – 8/18/97	44.5/F	Spurious closure of steam generator "2d" main steam isolation valve.
<u>TYPE*</u>	F- Forced	S- Scheduled	

DUKE POWER COMPANY
FOSSIL UNIT OUTAGE REPORT
(100 HRS OR GREATER DURATION)
APRIL 1, 1997 – MARCH 31, 1998

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EXHIBIT NO. 2B

<u>MONTH</u>	<u>UNIT</u>	<u>HRS/TYPE*</u>	<u>REASON FOR OUTAGE AND CORRECTIVE ACTION</u>
APR 97	Belews 2 Marshall 4	118/S 189/S	Boiler inspections. Boiler inspections.
MAY 97	Belews 2 Belews 2 Cliffside 5	296/S 132/F 355/S	Boiler inspections. First reheater tube leak. Boiler inspections.
JUN 97	Belews 1	221/F	Air cooling system.
JUL 97	Belews 1 Marshall 4	149/S 125/F	Liquid cooling system. First reheater tube leak.
SEP 97	Belews 1	491/F	Generator main leads/first reheater tube leak.
NOV 97	Marshall 4	486/S	Boiler inspections.
FEB 98	Marshall 3	140/F	First superheater tube leak.
MAR 98	Belews 2 Marshall 4	333/S 360/S	Boiler inspections. Boiler inspections.

TYPE* F – Forced S – Scheduled

DUKE POWER COMPANY

GENERATION MIX

APRIL 1, 1997 - MARCH 31, 1998

<u>MONTH-YR</u>	<u>PERCENTAGE</u>		
	<u>FOSSIL</u>	<u>NUCLEAR</u>	<u>HYDRO</u>
April-97	60	37	3
May-97	60	37	3
June-97	54	44	2
July-97	58	40	2
August-97	53	47	0
September-97	55	45	0
October-97	65	35	0
November-97	63	36	1
December-97	64	35	1
January-98	48	48	4
February-98	42	52	6
March-98	45	51	4

DUKE POWER COMPANY

GENERATION STATISTICS OF MAJOR PLANTS

APRIL 1, 1997 –MARCH 31, 1998

<u>PLANT</u>	<u>TYPE FUEL</u>	<u>AVERAGE FUEL COST (CENTS/KWH*)</u>	<u>GENERATION (MWH)</u>
Catawba	Nuclear	0.43	17,854,244
Oconee	Nuclear	0.46	15,654,975
McGuire	Nuclear	0.47	15,000,924
Belews Creek	Coal	1.27	15,858,458
Cliffside 5	Coal	1.42	3,005,637
Marshall	Coal	1.89	8,556,270

(*) The average fuel costs for coal-fired plants include oil cost for start-up and flame stabilization.

DUKE POWER COMPANY
 SOUTH CAROLINA RETAIL COMPARISON OF ESTIMATED TO ACTUAL ENERGY SALES

	1997												1998		
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	TOTAL		
[1] ESTIMATED SALES [MWH]	1,693,956	1,751,790	1,910,320	1,939,626	2,031,309	1,924,493	1,830,021	1,707,692	1,758,970	1,766,324	1,804,454	1,813,472	21,932,427		
[2] ACTUAL SALES [MWH]	1,650,676	1,659,401	1,771,393	1,947,570	2,089,877	1,996,997	1,667,722	1,697,758	1,783,242	1,871,104	1,740,050	1,742,757	21,618,547		
[3] AMOUNT DIFFERENCE [1]-[2]	43,280	92,389	138,927	-7,944	-58,568	-72,504	162,299	9,934	-24,272	-104,780	64,404	70,715	313,880		
[4] PERCENT DIFFERENCE [3]/[2]	2.6%	5.6%	7.8%	-0.4%	-2.8%	-3.6%	9.7%	0.6%	-1.4%	-5.6%	3.7%	4.1%	1.5%		

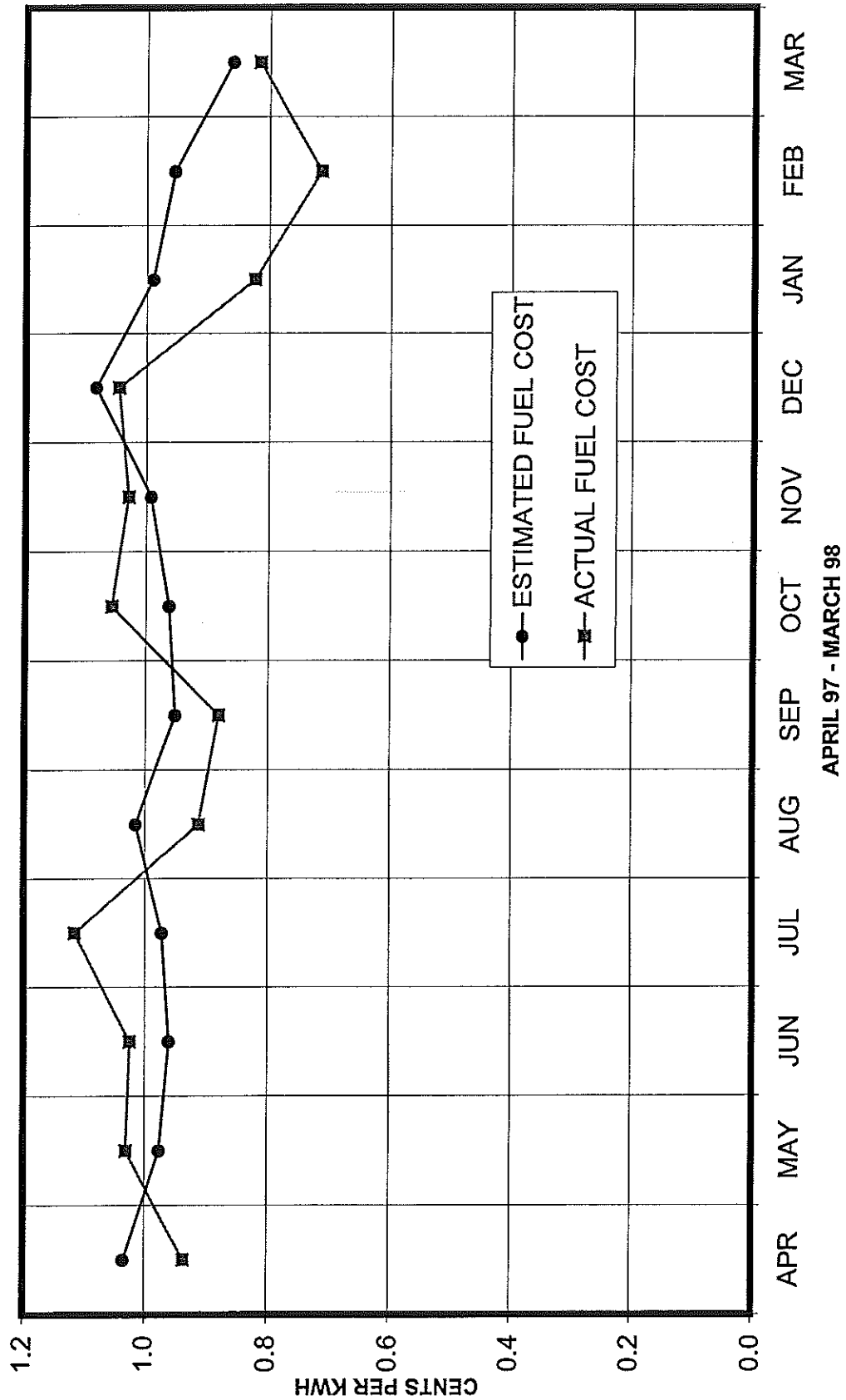
DUKE POWER COMPANY

SOUTH CAROLINA RETAIL COMPARISON OF ESTIMATED TO ACTUAL FUEL COST

	1997 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1998		
										JAN	FEB	MAR
[1] ORIGINAL PROJECTION	1.0350	0.9762	0.9609	0.9723	1.0158	0.9520	0.9625	0.9924	1.0832	0.9893	0.9548	0.8602
[2] ACTUAL EXPERIENCE	0.9370	1.0311	1.0249	1.1158	0.9134	0.8808	1.0563	1.0298	1.0456	0.8239	0.7144	0.8163
[3] AMOUNT IN BASE	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
[4] VARIANCE FROM ACTUAL [1-2]/[2]	10.5%	-5.3%	-6.2%	-12.9%	11.2%	8.1%	-8.9%	-3.6%	3.6%	20.1%	33.7%	5.4%

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EXHIBIT NO. 6

DUKE POWER COMPANY
 ESTIMATED TO ACTUAL FUEL COST



ADJUSTMENT FOR FUEL COSTS

APPLICABILITY

This adjustment is applicable to and is a part of the Utility's South Carolina retail electric rate schedules.

The Public Service Commission has determined that the costs of Fuel in an amount to the nearest one ten-thousandth of a cent, as determined by the following formula, will be included in the base rates to the extent determined reasonable and proper by the Commission for the succeeding six months or shorter period:

$$F = \frac{E}{S} + \frac{G}{S_1}$$

Where:

F = Fuel cost per kilowatt-hour included in base rate, rounded to the nearest one ten-thousandth of a cent.

E = Total Projected system Fuel costs:

- (A) Fuel consumed in the Utility's own plants and the Utility's share of fuel consumed in jointly owned or leased plants. The cost of fossil fuel shall include no items other than those listed in Account 151 of the Commission's Uniform System of Accounts for Public Utilities and Licensees. The cost of nuclear fuel shall be that as shown in Account 518 excluding rental payments on leased nuclear fuel and except that, if Account 518 also contains any expense for fossil fuel which has already been included in the cost of fossil fuel, it shall be deducted from this account.

Plus

- (B) Purchased power fuel costs such as those incurred in unit power and Limited Term power purchases where the fuel costs associated with energy purchased are identifiable and are identified in the billing statement.

Plus

- (C) Interchange power fuel costs such as Short Term, Economy and other where the energy is purchased on economic dispatch basis.

Energy receipts that do not involve money payments such as Diversity energy and payback of storage energy are not defined as purchased or interchange power relative to this fuel calculation.

Minus

- (D) The cost of fuel recovered through intersystem sales including the fuel costs related to economy energy sales and other energy sold on an economic dispatch basis.

Energy deliveries that do not involve billing transactions such as Diversity energy and payback of storage are not defined as sales relative to this fuel calculation.

S = Projected system kilowatt-hour sales excluding any intersystem sales.

G = Cumulative difference between jurisdictional fuel revenues billed and fuel expenses at the end of the month preceding the projected period utilized in E and S.

S₁ = Projected jurisdictional kilowatt-hour sales for the period covered by the fuel costs included in E.

The appropriate revenue-related tax factor is to be included in these calculations.

The fuel cost F as determined by SCPSC Order No. 97-469 for the period June 1997 through May 1998 is 1.000 cent per kilowatt-hour.

DUKE POWER COMPANY

HISTORY OF CUMULATIVE RECOVERY ACCOUNT

<u>PERIOD ENDING</u>	<u>OVER (UNDER)\$</u>
May 1979 - Automatic Fuel Adjustment in Effect	
November-1979	1,398,442
May-1980	11,322,948
November-1980	4,588,331
May-1981	(5,760,983)
November-1981	(13,061,000)
May-1982	(14,533,577)
November-1982	(4,314,612)
May-1983	20,915,390
November-1983	14,192,297
May-1984	18,245,503
November-1984	14,478,363
May-1985	2,551,115
November-1985	(553,465)
May-1986	(1,318,767)
November-1986	(29,609,992)
May-1987	(27,241,846)
November-1987	(29,329,168)
May-1988	(9,373,768)
November-1988	6,544,914
May-1989	6,067,739
November-1989	11,372,399
May-1990	15,421,968
November-1990	2,939,303
May-1991	17,068,483
November-1991	21,265,000
May-1992	21,080,856
November-1992	11,553,801
May-1993	16,959,555
November-1993	221,606
May-1994	6,609,897
November-1994	1,037,659
May-1995	5,088,619
November-1995	(377,507)
March-1997	(13,299,613)
March-1998	(1,956,794)

**DUKE POWER COMPANY
 PROJECTIONS OF THE CUMULATIVE RECOVERY ACCOUNT
 FOR THE TWELVE MONTH PERIOD ENDING
 MAY 1999**

	FUEL BASE	PROJECTED CUMULATIVE OVER/(UNDER) RECOVERY (\$)
	0.925	(20,349,580)
	0.950	(14,737,568)
	0.975	(9,125,555)
COMPANY PROPOSED	1.000	(3,513,543)
	1.008	(1,717,699)
ZERO UNDER	1.015	(146,336)
ZERO OVER	1.016	78,145
	1.020	976,067
	1.025	2,098,469
	1.030	3,220,872
	1.050	7,710,482
	1.075	13,322,494
	1.100	18,934,506